



Summary of COVID-19 virus variants in Ireland

Report prepared by HPSC and NVRL on 20/04/2021

Background

All medical practitioners, including clinical directors of diagnostic laboratories, are required to notify the Medical Officer of Health (MOH)/Director of Public Health (DPH) of any confirmed, probable or possible cases of COVID-19 that they identify. Laboratory, clinical and epidemiological data, on notified COVID-19 cases, are recorded on Health Protection Surveillance Centre's (HPSC) Computerised Infectious Disease Reporting System (CIDR).

This report includes whole genome sequencing (WGS) carried out by the National Virus Reference Laboratory (NVRL) and partners. Current whole genome sequencing capacity is approximately 1,000 specimens per week.

This report summarises whole genome sequencing and epidemiological data for COVID-19 cases that have been sequenced in Ireland since week 51 2020 (specimen dates between 13th December 2020 and 10th April 2021). Epidemiological data on these cases were extracted from CIDR on 20/04/2021. CIDR is a dynamic system and case details may be updated at any time. Therefore, the data described here may differ from previously reported data and data reported for the same time period in the future.

The interim case definition for variants of concern (VOC) for public health response and an overview of the procedures for laboratory detection of mutations or variants of concern at NVRL are available [here](#).

The World Health Organization working definitions for 'SARS-CoV-2 variants of concern' and 'SARS-CoV-2 variants of interest' are available [here](#).

Overview of SARS CoV-2 virus variants identified in Ireland to week 14 2021

The first variant of concern (VOC) case (B.1.1.7 (UK[^])) was detected in Ireland in week 51 2020 (week starting December 13th). The proportion of COVID-19 cases with sequencing results has continued to increase over time, with 17% of all cases sequenced between week 8 and week 14 2021. Cases of three variants of concern (VOC) have been identified in Ireland to date; B.1.1.7 (UK), B.1.351 (South Africa) and P.1 (Brazil). Five variants of interest have also been identified; P.2 (Brazil), B.1.525 (Nigeria) and B.1.526 (New York), A.27 (first identified in Mayotte – French overseas Department) and B.1.429 (California). Other variants of note to have been identified in Ireland are; three cases of B.1.617 (India) and 36 cases of B.1.318 (UK).

As mentioned previously, the first VOC case in Ireland, a B.1.1.7 (UK) case, had a specimen date in week 51 2020. Transmission of this variant is now widespread in Ireland. Ninety four percent of cases sequenced since week 8 2021 were found to be infected with the B.1.1.7 (UK) variant. Two cases of the B.1.1.7 (UK) variant identified in Ireland have been found to have the additional E484K mutation.

The first case of the B.1.351 (South Africa) VOC identified in Ireland had a specimen date in week 52 2020 (week starting December 19th). A total of 55 COVID-19 cases have been confirmed to have been infected with this variant in Ireland to date. The first case of the P.1 (Brazil) VOC was sampled in week 5 2021. To date this variant has been confirmed in 24 cases of COVID-19. Figure 1 illustrates sequencing results since week 51 2020.

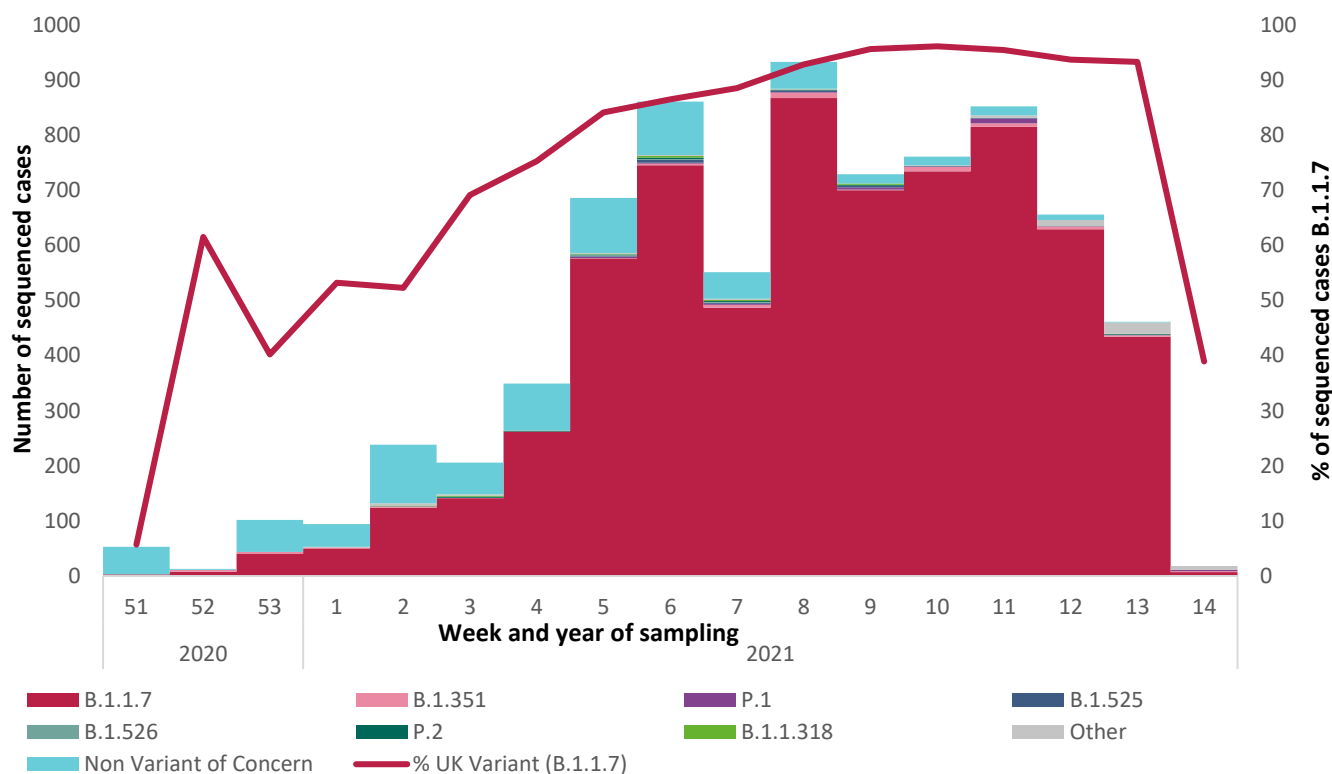


Figure 1. Whole genome sequencing results and percentage of sequenced specimens* that were found to be the B.1.1.7(UK) variant of concern, specimen collection dates from week 51 (December 13th 2020) to week 14* (April 10th 2021)**

*The proportion of cases attributed to lineage B.1.1.7 is based on S gene target failure (SGTF) data from the Thermo Fisher TaqPath assay. To date, all those SGTF samples that have undergone WGS have been identified as lineage B.1.1.7.

**Other includes probable or possible variants of concern and other variants of interest identified in <5 cases (A.27, B.1.617, B.1.429).

***WGS result for specimens with sampling dates in recent weeks may not yet be available

[^] The geographical region in brackets indicates the location where the variant was first detected

Table 1. Sequencing results for COVID-19 cases sampled from week 51 (December 13th 2020) to week 14 (April 10rd 2021)

Virus variant	Number of cases
Variants of concern	
Confirmed B.1.351 (South Africa*)	55
Confirmed P.1 (Brazil)	24
Confirmed B.1.1.7 (UK)**	6623
Other variants of interest	
P.2 (Brazil)	14
B.1.525 (Nigeria)	17
B.1.526 (New York)	6
B.1.429 (California)	2
A.27 (Mayotte)	2
Other variants of note	2
B.1.1.318 (UK)	36
B.1.617 (India)	3
Other - not variants of concern or interest	754
Total	7538

* The country in brackets indicates the country where the variant was first detected

**Two cases infected with the B.1.1.7 variant were found to have the additional E484K mutation

Focus on the emerging variants of concern and variants of interest (excluding variant B.1.1.7)

Variants of concern

B.1.351 (South Africa) VOC: A total of 55 COVID-19 cases have been confirmed to have been infected with the B.1.351 (South Africa) VOC in Ireland to date. These are summarised in table 1, figure 2 and table 3. Table 5 summarises outbreaks or clusters with at least one linked case identified as infected with a VOC or variant of interest (VOI).

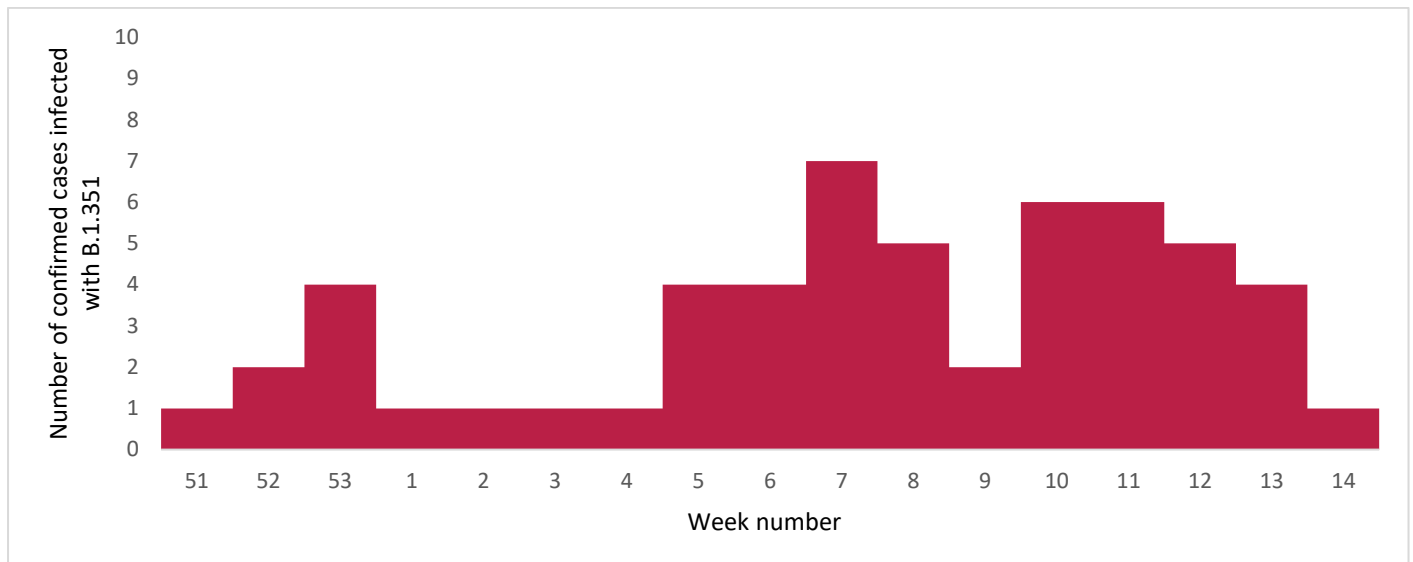


Figure 2. Number of cases of COVID-19 identified as infected with the B.1.351 (South Africa) VOC by epidemiological date*

*Epidemiological date is derived from the earliest of onset date, date of diagnosis, laboratory specimen collection date, laboratory received date, laboratory reported date, event creation/notification date

P.1 (Brazil) VOC: To date the P.1 (Brazil) has been confirmed in 24 cases of COVID-19. These are summarised in table 1, figure 3 and table 3.

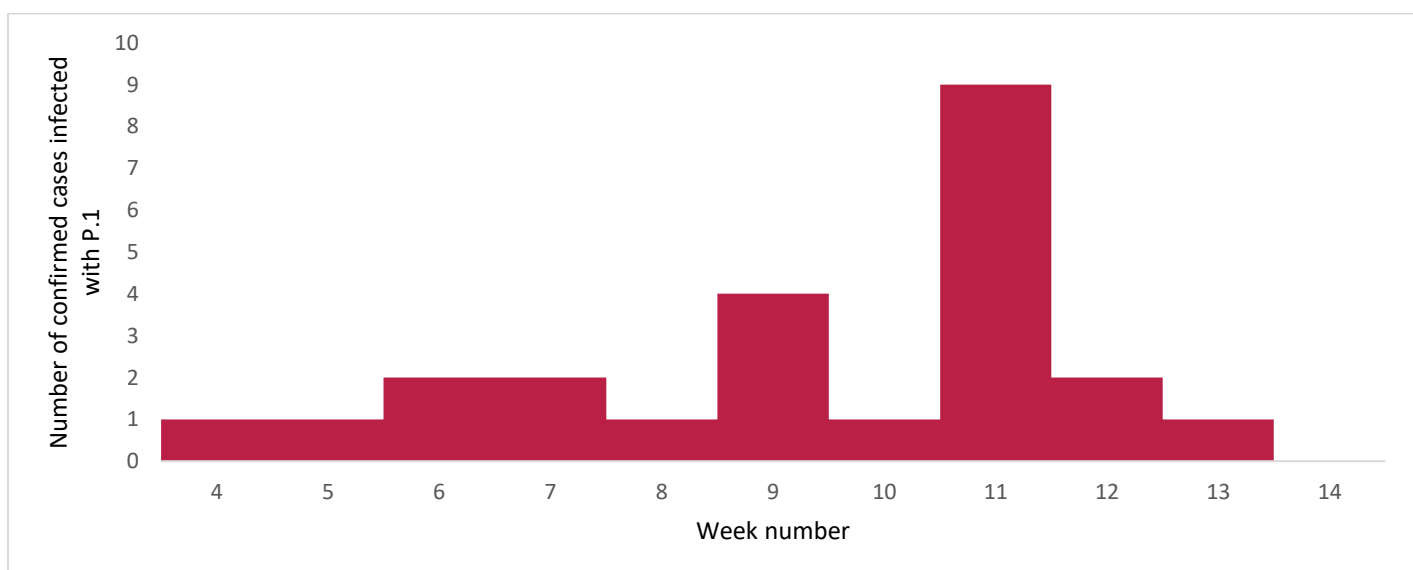


Figure 3. Number of cases of COVID-19 identified as infected with the P.1 (Brazil) VOC by epidemiological date*

*Epidemiological date is derived from the earliest of onset date, date of diagnosis, laboratory specimen collection date, laboratory received date, laboratory reported date, event creation/notification date

Table 3. Summary of sequenced cases infected with the variants of concern B.1.351 (South Africa) and P.1 (Brazil), specimen collection dates from week 51 (December 13th 2020) to week 14 (April 10th 2021)

Characteristic	B.1.351 (South Africa)		P.1 (Brazil)	
	Num	%	Num	%
Age group				
≤18 yrs	8	14.5	2	8.3
19-34 yrs	12	21.8	11	45.8
35-44 yrs	16	29.1	7	29.2
45-64 yrs	15	27.3	4	16.7
65+yrs	4	7.3	0	0.0
Sex				
Male	27	49.1	14	58.3
Female	28	50.9	10	41.7
Total	55		24	

Variants of interest/variants of note

The variants of interest (VOI) identified in Ireland to date are summarised in table 4. Outbreaks involving more than one case and where at least one case was identified as infected with a VOI or variant of note are summarised in table 5. Five VOIs have been identified in Ireland to date; P.2 (Brazil), B.1.525 (Nigeria), B.1.526 (New York), A.27 (Mayotte) and B.1.429 (California). Two other variants are also being closely monitored; B.1.1.318 (UK) and B.1.617 (India).

Table 4. Summary of sequenced cases infected with the variants of interest/variants of note, specimen collection dates from week 51 (December 13th 2020) to week 14 (April 10th 2021)

Characteristic	P.2 (Brazil)		B.1.525 (Nigeria)		B.1.526 (New York)		B.1.1.318 (UK)		B.1.617 (India)		B.1.429 (California)	
	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%
Age group												
≤18 yrs	1	7.1	2	11.8	5	83	9	25	0	0	1	50
19-34 yrs	6	42.9	7	41.2	0	0	10	27.8	1	33.3	0	0
35-44 yrs	5	35.7	5	29.4	0	0	8	22.2	1	33.3	0	0
45-64 yrs	1	7.1	3	17.6	1	16.7	7	19.4	0	0	1	50
65+yrs	1	7.1	0	0	0	0	2	5.6	1	33.3	0	0
Sex												
Male	7	50.0	7	41.2	4	66.7	17	47.2	2	66.7	2	100
Female	7	50.0	10	58.8	2	33.3	19	52.8	1	33.3	0	0
Total	14		17		6		36		3		2	

Note: 2 cases of A.27(Mayotte) have also been identified

Table 5. Summary of outbreaks with at least one associated case identified as infected with a variant of concern or a variant of interest/note, specimen collection dates from week 51 (December 13th 2020) to week 14 (April 10th 2021)

Variant	Number of outbreaks	Total number of cases linked to outbreaks on CIDR*	Range of outbreak size
B.1.351 (South Africa)	21	116	3 - 27
P.1 (Brazil)	8	27	2 - 9
P.2 (Brazil)	3	13	3 - 5
B.1.525 (Nigeria)	3	9	2 - 5
B.1.526 (New York)	2	10	2 - 8
B.1.1.318 (UK)	4	27	3 - 12

*WGS results are not available for all cases associated with each outbreak

Acknowledgement: Sincere thanks are extended to all those who participate in the collection and reporting of data used in this report. This includes the National Virus Reference Laboratory staff, notifying clinicians, public health doctors, nurses, surveillance scientists, contact tracers, microbiologists, laboratory staff, staff in ICU units and administration staff.

Further information

<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>

<https://www.cdc.gov/coronavirus/2019-ncov/transmission/variant.html>

<https://www.ecdc.europa.eu/en/publications-data/covid-19-infographic-mutations-current-variants-concern>

<https://www.gov.uk/government/publications/covid-19-variants-genomically-confirmed-case-numbers/variants-distribution-of-cases-data>

<https://www.gov.uk/government/news/confirmed-cases-of-covid-19-variants-identified-in-uk>